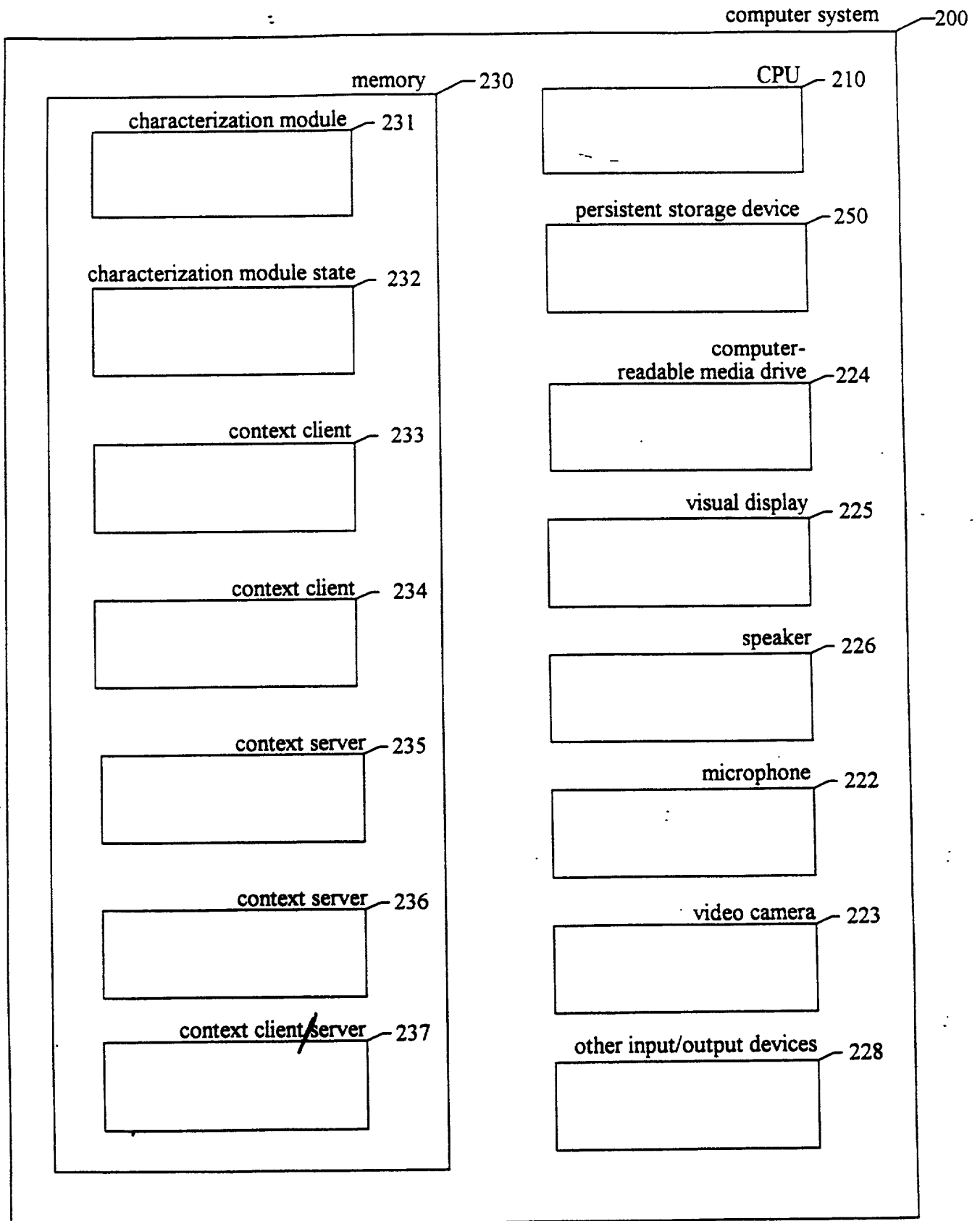


Fig. 1



**Fig. 2**

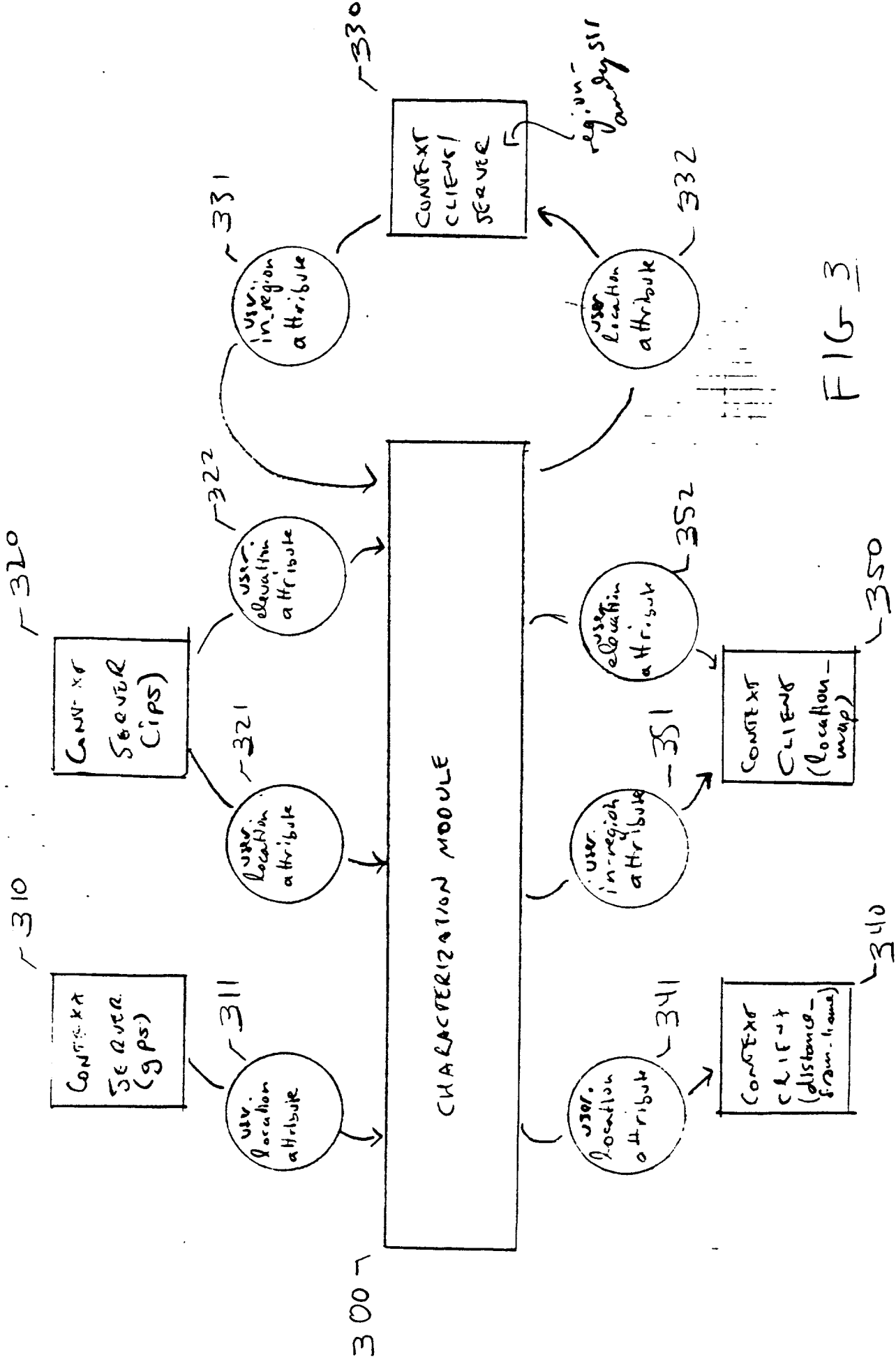


FIG. 3

context server table 400

context server name	version	installation date	filename	request handler
gps	1	2/10/2000	gps.exe	(reference)
ips	1	2/21/2000	ips.exe	(reference)
location_region_analysis	1	2/10/2000	l r a.exe	(reference)

FIG 4

attribute instance table 500

attribute name	context server name	value	uncertainty	timestamp	units	number of context clients consuming
user.location	gps	47° 38.73' N, 122° 18.43' W	0° 09'	13:11:04.023 2/22/2000	degrees/minutes	2
user.location	ips	47° 38.745' N, 122° 18.424' W	0° 021'	13:11:01.118 2/22/2000	degrees/minutes	2
user.elevation	ips	22	.5	13:11:01.118 2/22/2000	meters	1
user.in_region	location_region_analysis	none	none	none	none	0

FIG 5

600

context client name		message handler	context client table
location_map	(reference)		
distance from home	(reference)		
region_analysis	(reference)		

611

FIG 6

700

attribute name	context server name	value	uncertainty	timestamp	units	number of context clients consuming
user.location	gps	47° 38.73' N, 122° 18.43' W	0° 09'	13:11:04.023 2/22/2000	degrees/minutes	2
user.location	ips	47° 38.745' N, 122° 18.424' W	0° 021'	13:11:01.118 2/22/2000	degrees/minutes	2
user.elevation	ips	22	.5	13:11:01.118 2/22/2000	meters	1
user.in_region	location_region_analysis	none	none	none	none	1

701 702 703 704

711 712 713 714 715 716 717

FIG 7

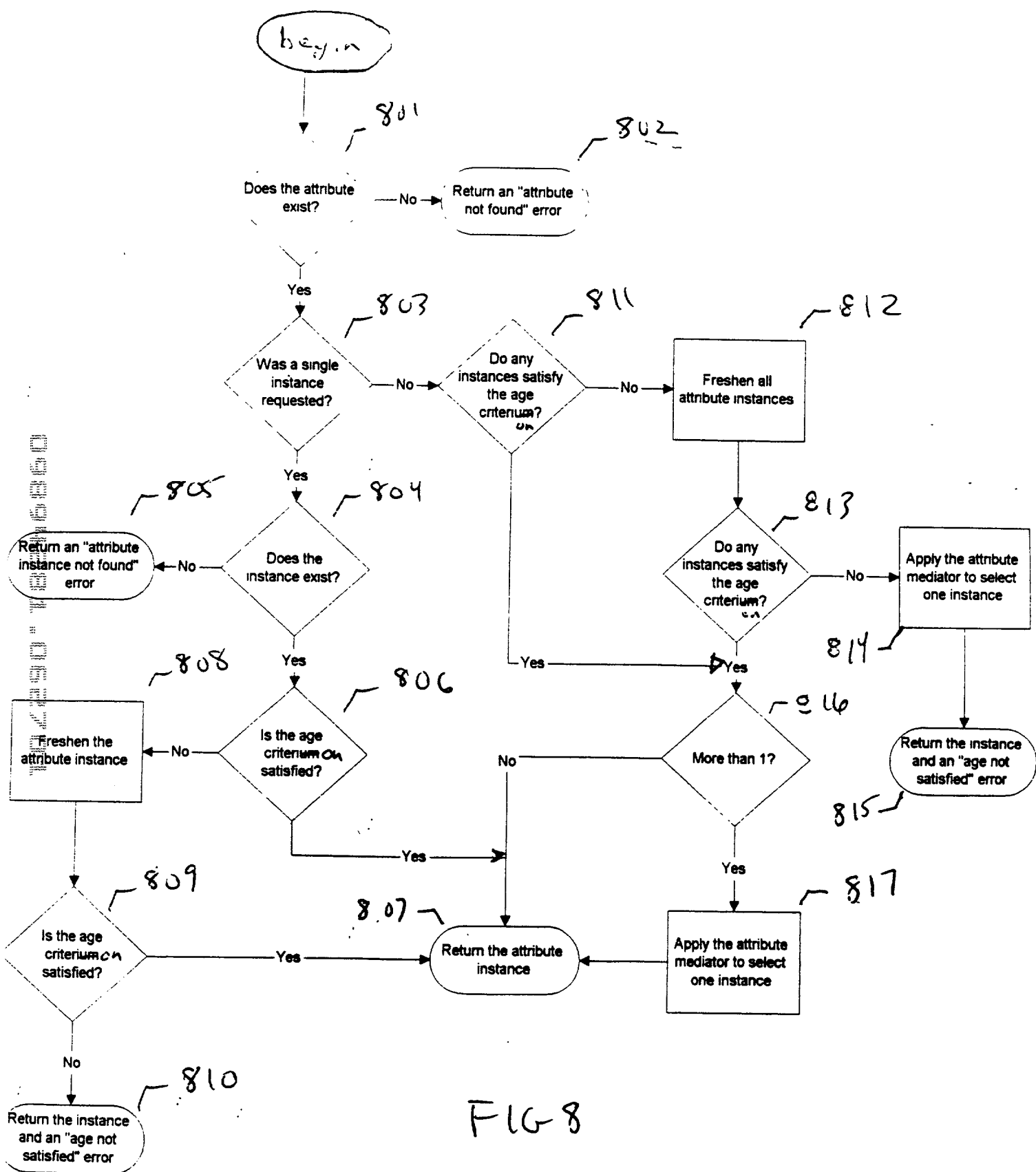


FIG 8

attribute instance table

attribute name	context server name	value	uncertainty	timestamp	units	number of context clients consuming
user.location	gps	47° 38.73' N, 122° 18.43' W	0° .09'	13:11:04.023 2/22/2000	degrees/minutes	2
user.location	ips	47° 38.745' N, 122° 18.424' W	0° .021'	13:11:01.118 2/22/2000	degrees/minutes	2
user.elevation	ips	22.25	.5	13:11:06.565 2/22/2000	meters	1
user.in region	region analysis	none	none	none	none	1

FIG 9

condition table

condition name	context client name	first logical parameter	second logical parameter	comparison value	logical operator
in region true	region analysis	user.in region	none	TRUE	=

FIG 10

FIG 11

condition monitor table

condition monitor name	context client name	condition name	behavior	frequency	condition last evaluated	trigger handler reference	stopped
region_boundaries_crossed	region_analysis	in_region_true	TRUE or FALSE	30	13:11:29.101 2/22/2000	(reference)	no

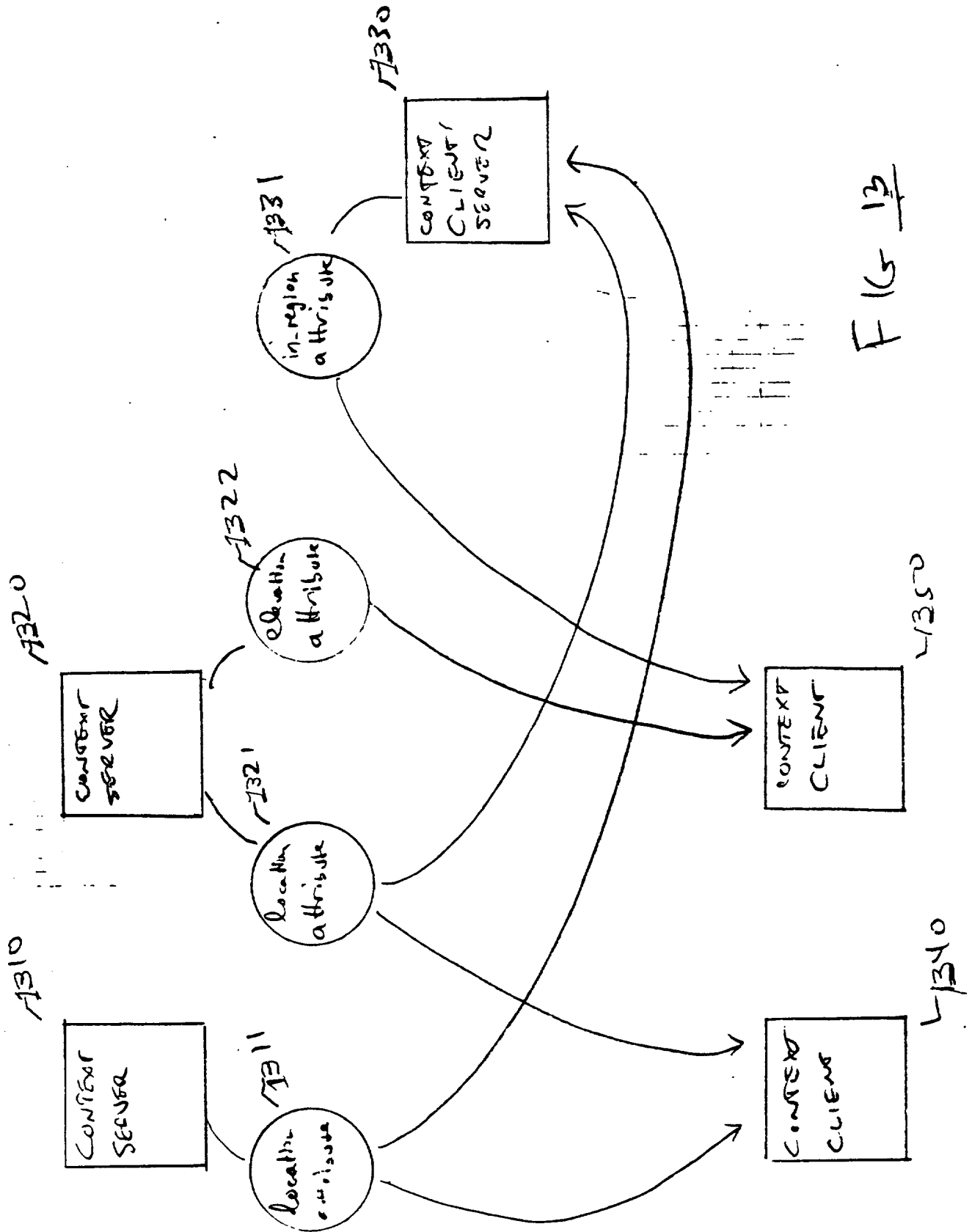
FIG 11

condition monitor table

condition monitor name	context client name	condition name	behavior	frequency	condition last evaluated	trigger handler reference	stopped
region_boundaries_crossed	region_analysis	in_region_true	TRUE or FALSE	30	13:11:59.101 2/22/2000	(reference)	yes

FIG 12





attribute request table

attribute name	context client name
user.location	distance_from_home
user.in_region	location_map
user.location [gps]	location_region_analysis
user.elevation	location_map

1411

Figure 14

1412

FOIA b 7 - DATED 04-15-2014

**User.**

Desired\_privacy\_level  
 Interruptibility  
 Speed  
 Direction  
 Acceleration  
 Availability.  
   Cognitive\_availability  
   Tactile\_availability  
   Manual\_availability  
   Visual\_availability  
   Oral\_availability  
   Auditory\_availability  
 Proximity.<Item or place name>  
 Mood.  
   Happiness  
   Sadness  
   Anger  
   Frustration  
   Confusion  
 Activity.  
   Driving  
   Eating  
   Running  
   Sleeping  
   Talking  
   Typing  
   Walking  
 Location.  
   Place\_name  
   Latitude  
   Longitude  
   Altitude  
   Room  
   Floor  
   Building  
   Address  
   Street  
   City  
   County  
   State  
   Country  
   Postal\_Code  
 Destination. (same as User.Location.)  
 Physiology.  
   Pulse  
   Body\_temperature  
   Blood\_pressure  
   Respiration

**Person.**<name or ID>. (same as User.)

**Platform.**

## UI.

Oral\_input\_device\_availability  
 Manual\_input\_device\_availability  
 Tactile\_output\_device\_availability  
 Visual\_output\_device\_availability  
 Auditory\_output\_device\_availability

**Platform. (continued)**

## CPU.

Load  
 Speed

## Memory.

Total\_capacity  
 Used

## Storage.

Total\_capacity  
 Used

## Connectivity.

Connection\_status  
 Connection\_speed  
 Connection\_type/device  
 Connection\_activity

## Power.

Power\_source  
 Power\_level

**Environment.**

## People.

Nearest  
 Number\_present  
 Number\_close

## Local.

Time  
 Date  
 Temperature  
 Pressure  
 Wind\_speed  
 Wind\_direction  
 Absolute\_humidity  
 High\_forecast\_temperature  
 Low\_forecast\_temperature  
 People\_present  
 Ambient\_noise\_level  
 Ambient\_light\_level  
 Days.<previous or future>.  
   High\_temperature  
   Low\_temperature  
   Precipitation\_type  
   Precipitation\_amount

Place.<place name>. (same as Environment.Local)

**Application.**

## Mail.

Available  
 New\_messages\_waiting  
 Messages\_waiting\_to\_be\_sent

## Phone.

Available  
 In\_use  
 On/off  
 Notification\_mechanism  
 Call\_incoming  
 Caller\_ID

## Sound\_recorder.

Available  
 Recording

Fig. 15

- 1) User Setting
  - a) Mental Context
    - i) Meaning
    - ii) Cognition
      - (1) Divided User Attention
      - (2) Task Switching
      - (3) Background Awareness
    - iii) Solitude
    - iv) Privacy
      - (1) Desired Privacy
      - (2) Perceived Privacy
    - v) Social Context
    - vi) Affect
  - b) Physical Situation
    - i) Body
      - (1) Biometrics
      - (2) Posture
      - (3) Motion
      - (4) Physical Encumbrment
        - (a) Senses
          - (i) Eyes
          - (ii) Ears
          - (iii) Tactile
          - (iv) Hands
          - (v) Nose
          - (vi) Tongue
        - (b) Workload demands/effects
        - (c) Interaction with computer devices
        - (d) Interaction with people
        - (e) Physical Health
    - ii) Environment
      - (1) Time/Space
      - (2) Objects
      - (3) Persons
        - (a) Audience/Privacy Availability
          - (i) Scope of Disclosure
          - (ii) Hardware affinity for privacy
          - (iii) Privacy Indicator for User
          - (iv) Privacy Indicator for Public
          - (v) Watching Indicator
          - (vi) Being Observed Indicator
    - (4) Ambient Interference
      - (a) Visual
      - (b) Audio
      - (c) Tactile

- 2) Computer
  - a) Power
  - b) Configuration
    - i) User Input Systems
      - (1) Hand/Haptic
        - (a) Keyboard/Keystrokes
      - (2) Voice/Audio
      - (3) Eye Tracking
      - (4) Cursors
        - (a) Axis
        - (b) Resolution
          - (i) Selection
          - (ii) Invocation
        - (c) Accelerators
    - ii) Output Systems
      - (1) Visual
        - (a) Resolution
      - (2) Audio
        - (a) Public/Private
      - (3) Haptic
    - iii) External Resources
      - (1) I/O devices
      - (2) Connectivity
  - c) Data
    - i) Quantity/State
    - ii) Urgency/Importance
      - (1) Use of Prominence
    - iii) Modality
    - iv) Sensitivity/Purpose
      - (1) Privacy Issues
      - (2) Use of Association
      - (3) Use of Safety
    - v) Source/Ownership
      - (1) Types
        - (a) User generated
        - (b) Other computers or people
        - (c) Sensor
        - (d) PC State
      - (2) Use of Association

Fig. 16

Fig. 17

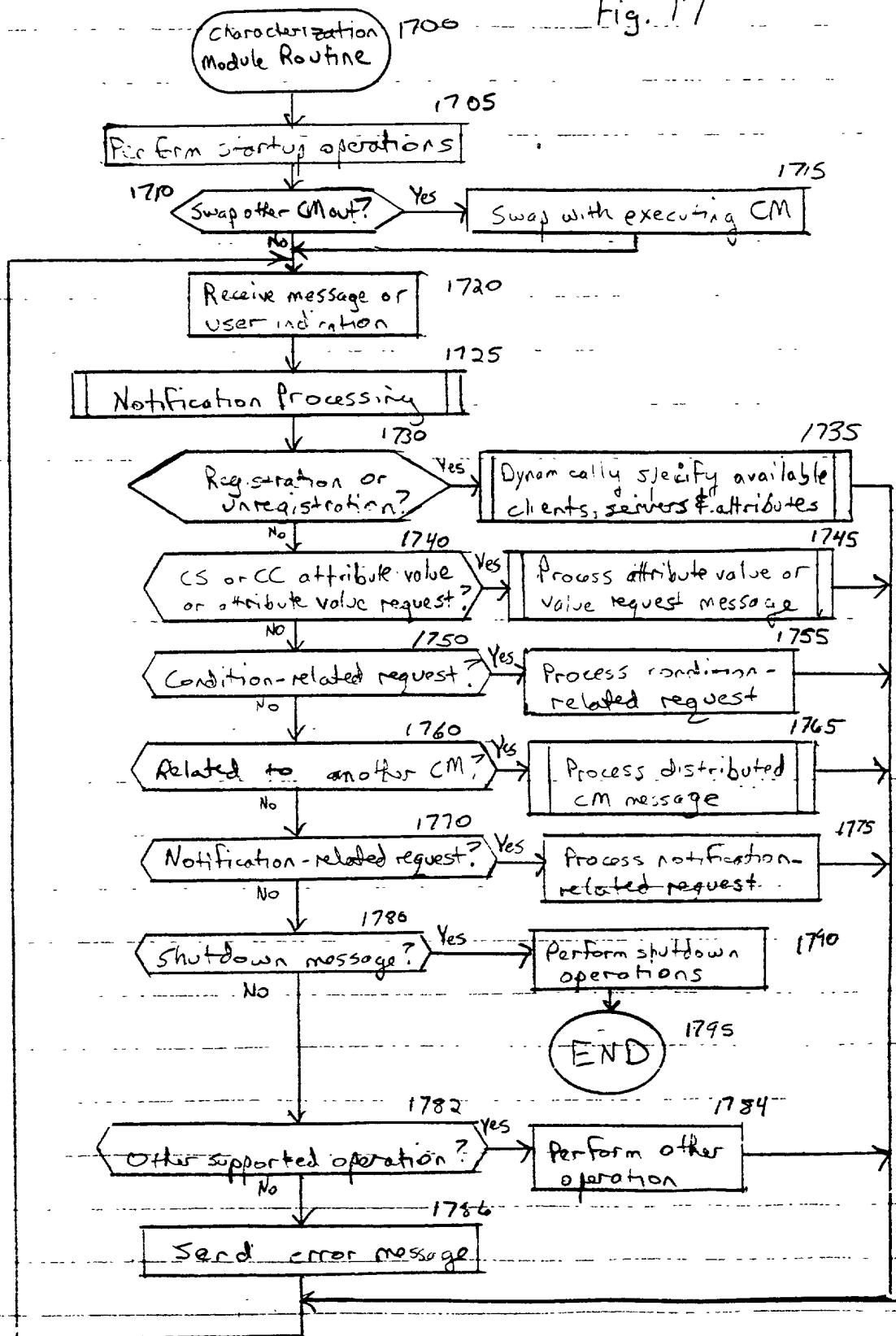


Fig. 18

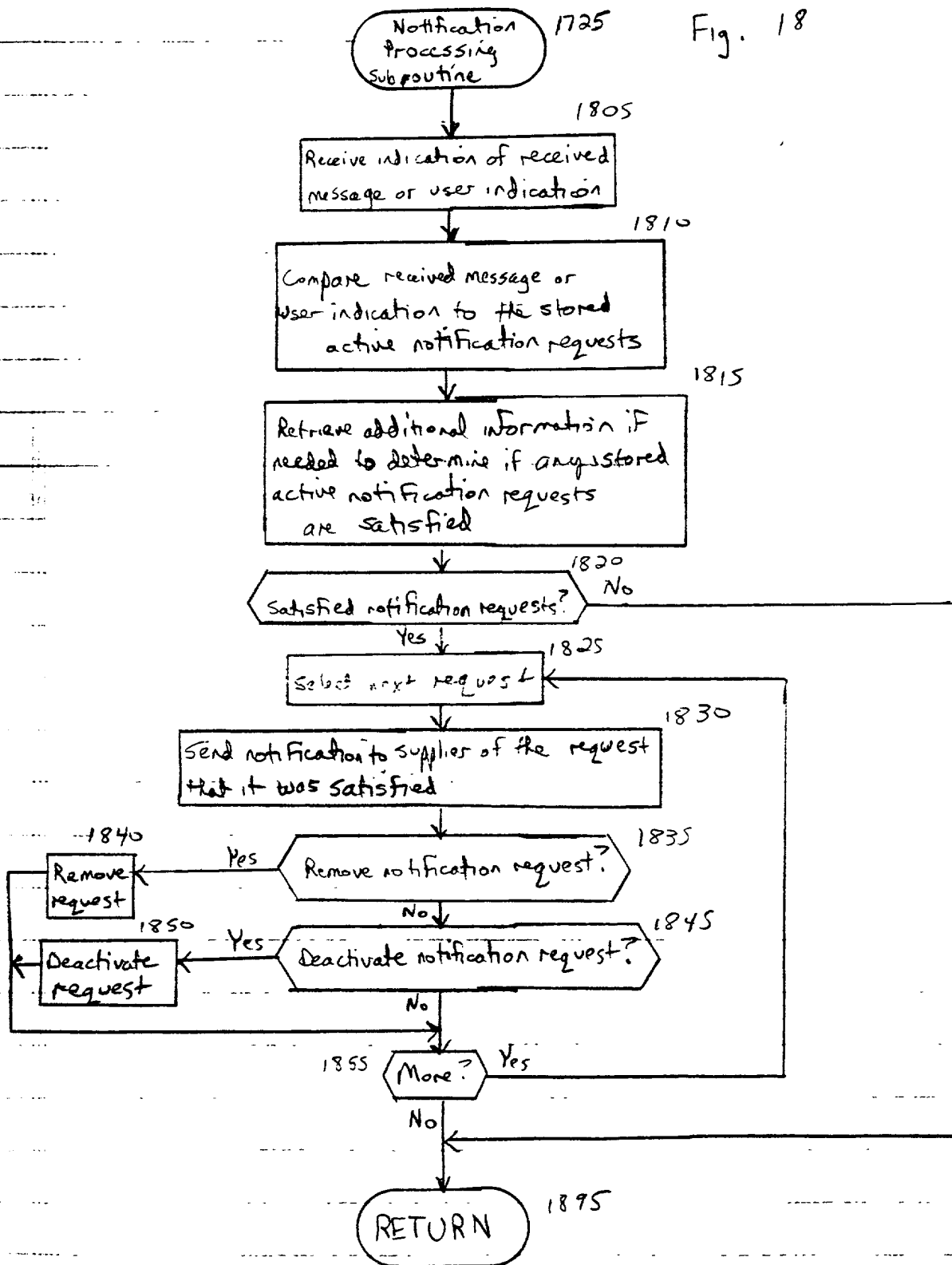


Fig. 19

Dynamically Specify Available  
Clients, Servers, & Attributes  
Subroutine

Receive a registration or  
unregistration message

Need security approval?

1735

1905

1915

Determine if security  
is satisfied

1925

satisfied?

Send  
error  
message

Related to ?

client

server

attributes

Register?

Register new  
client if  
possible

1944

Error?

Send error  
message

Attributes  
included to  
register?

1950

Unregister  
client

Unregister?

Any currently  
registered attributes  
for the client?

Register?

Select next  
attribute

Attribute exists?

Register new  
attribute  
instance

Register new  
attribute

More?

Unregister?

Unregister each  
attribute

RETURN

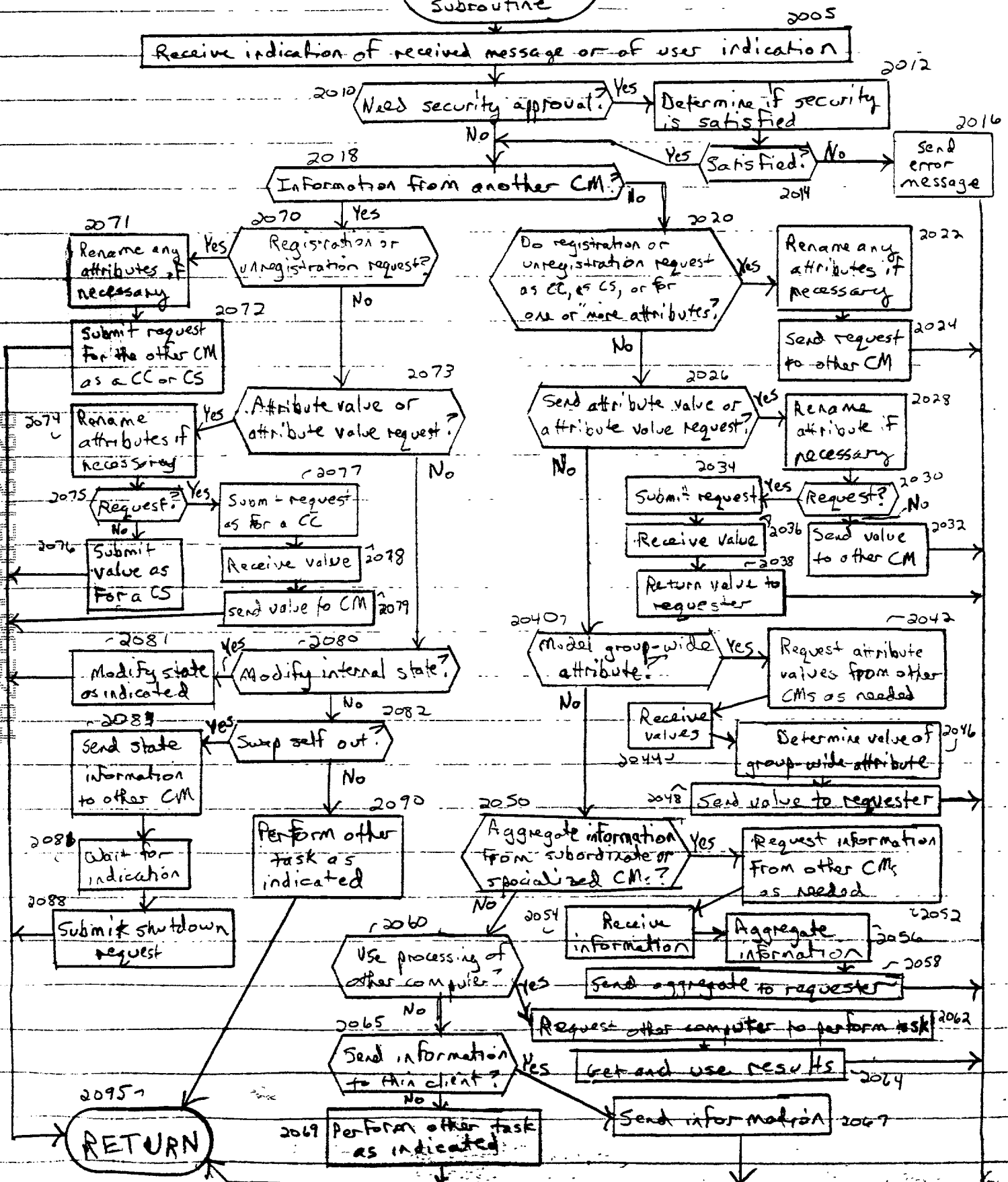
1995

102507825369

# Process Distributed CM Message Subroutine

1765

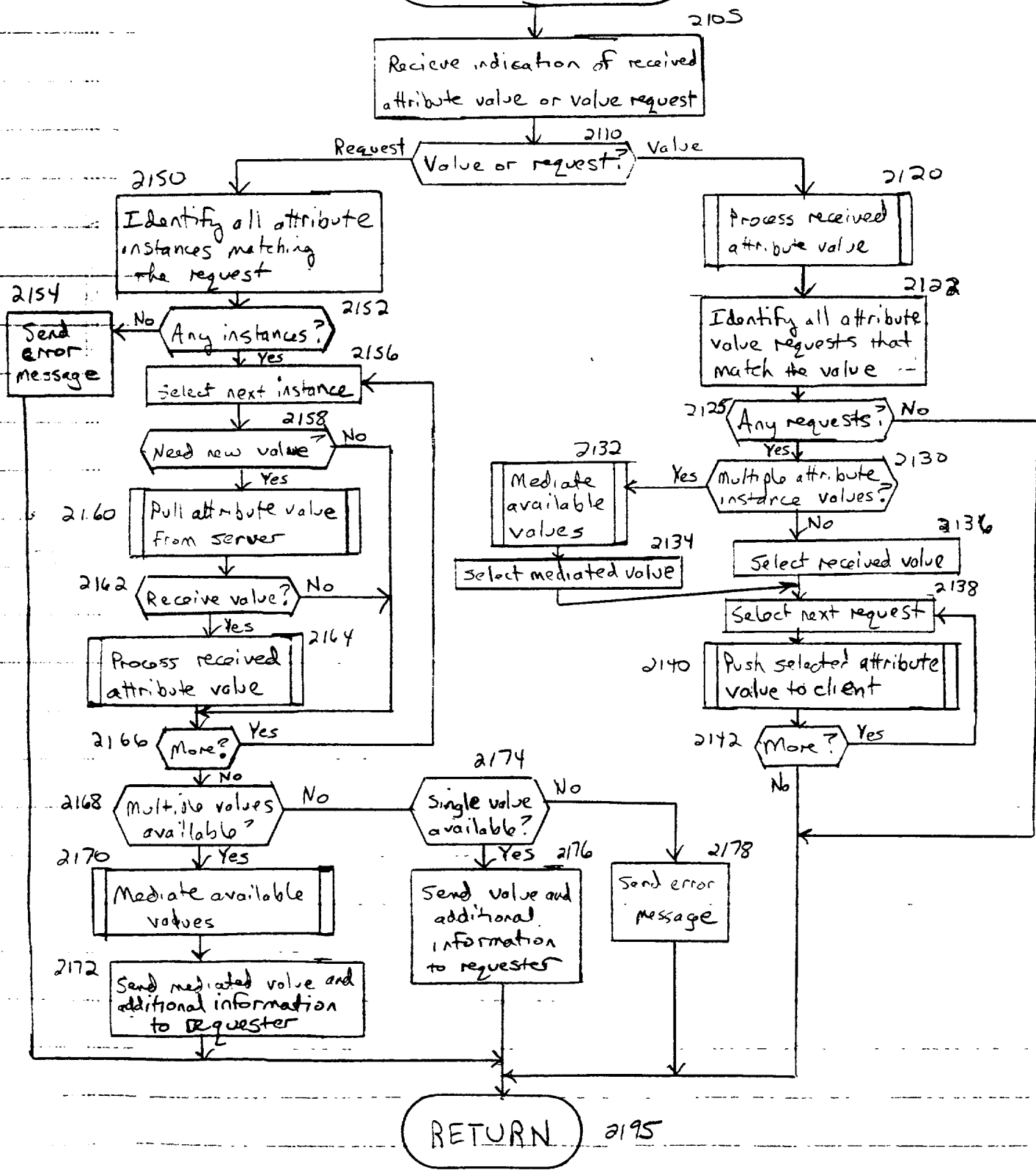
Fig. 20





# Process Attribute Value Or Value Request Message Subroutine

Fig. 21



2200  
Process Received  
Attribute Value  
subroutine

Fig 22

2205  
Receive indication of received  
attribute value

2215  
Send error  
message

2210  
Attribute registered?

2220  
Additional information?

2225  
Process additional  
information about  
received value

Cache value?

2235  
Cache value and any  
additional information

2240  
Store value?

2245  
Store value and any  
additional information

2250  
Determine if value and any  
additional information  
triggers any stored  
active conditions

2255  
Any conditions?

2260  
Select next condition

2265  
Send message to creator of the  
condition of its satisfaction

2270  
Remove condition?

2275  
Remove  
condition

2280  
Deactivate condition?

2285  
Deactivate  
condition

2290  
more?

2295  
RETURN

FOUO 06704

Fig. 23

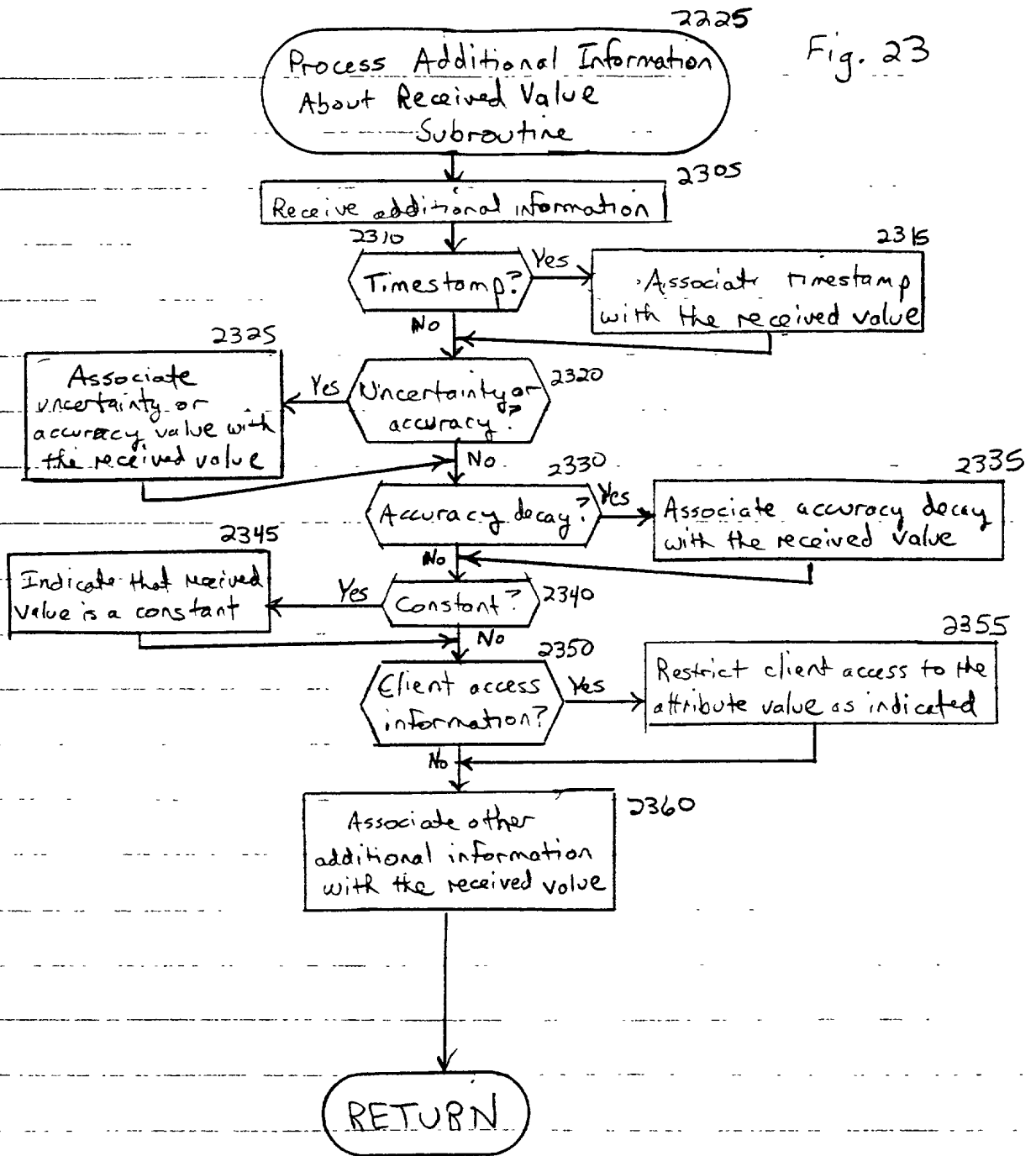


Fig. 24

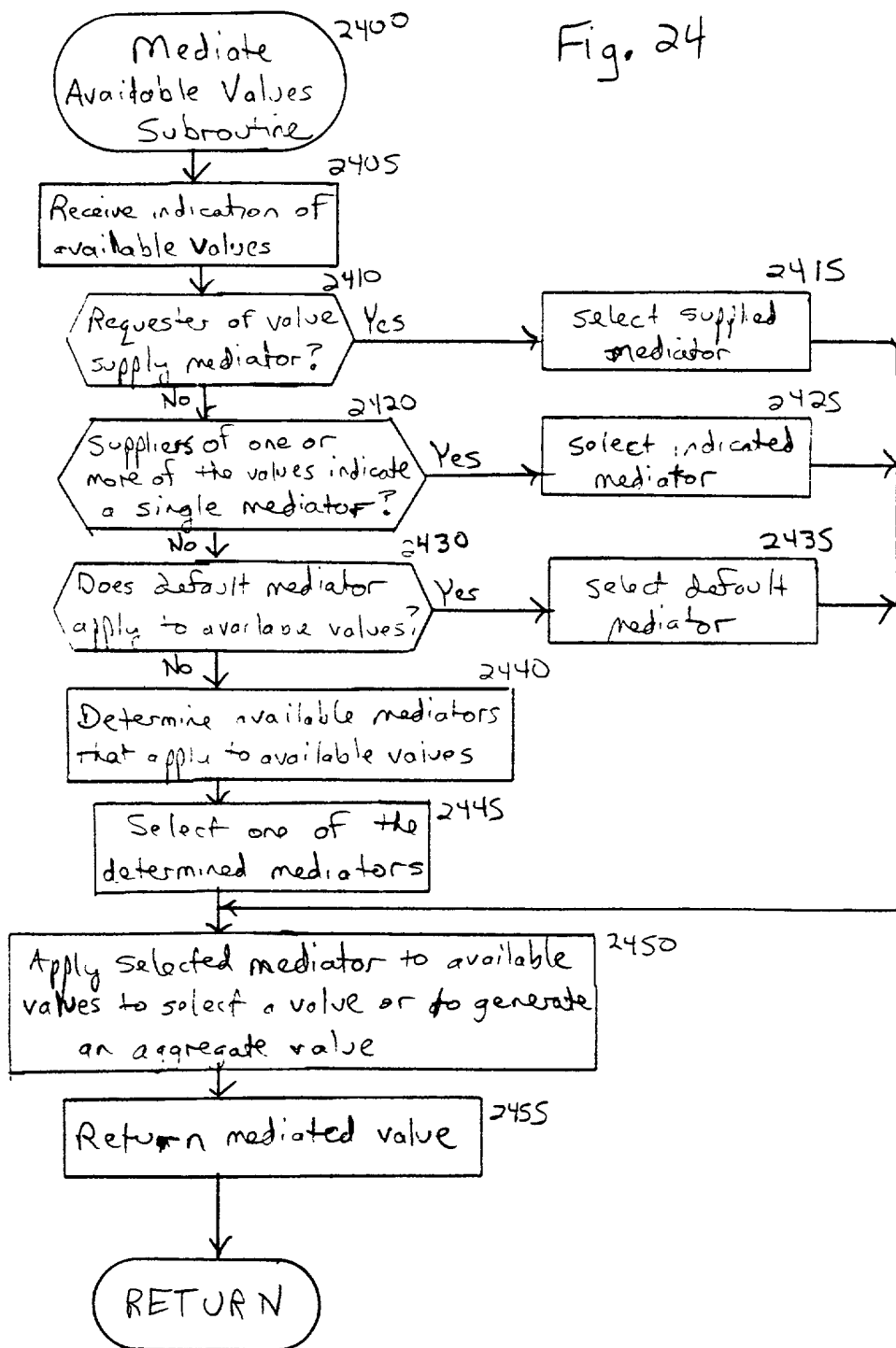
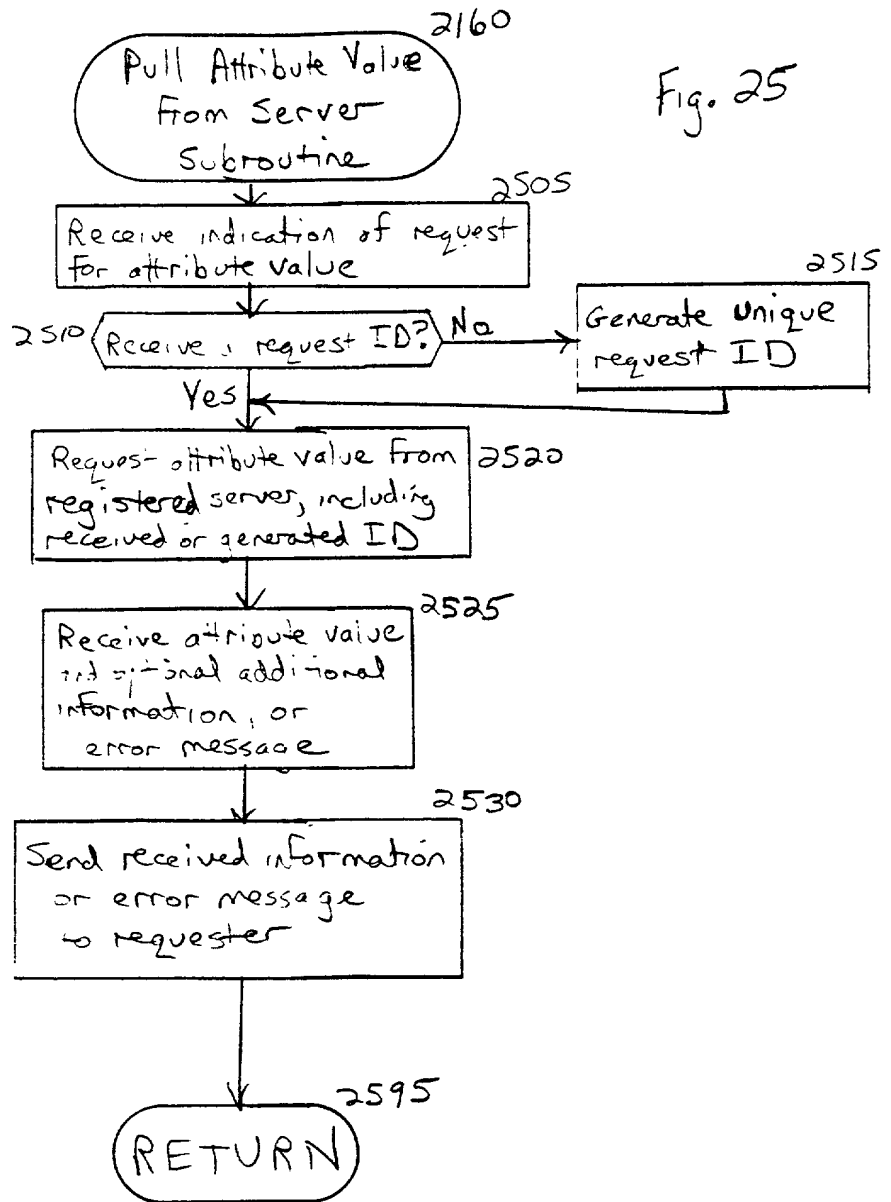


Fig. 25



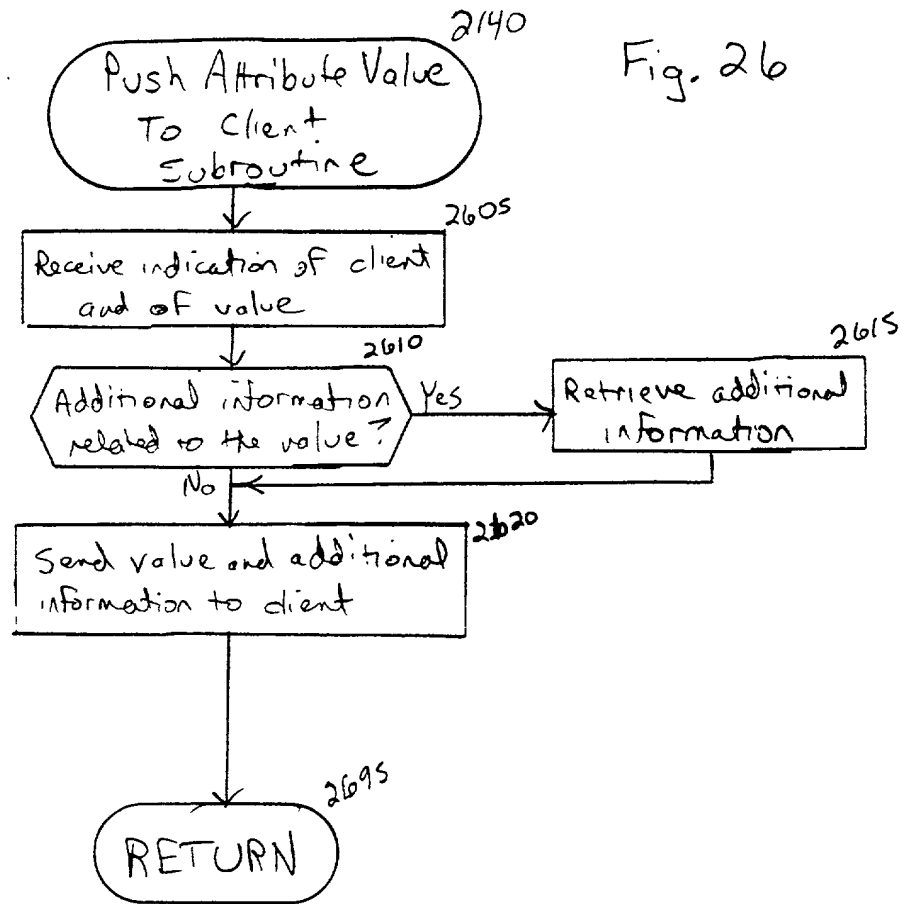
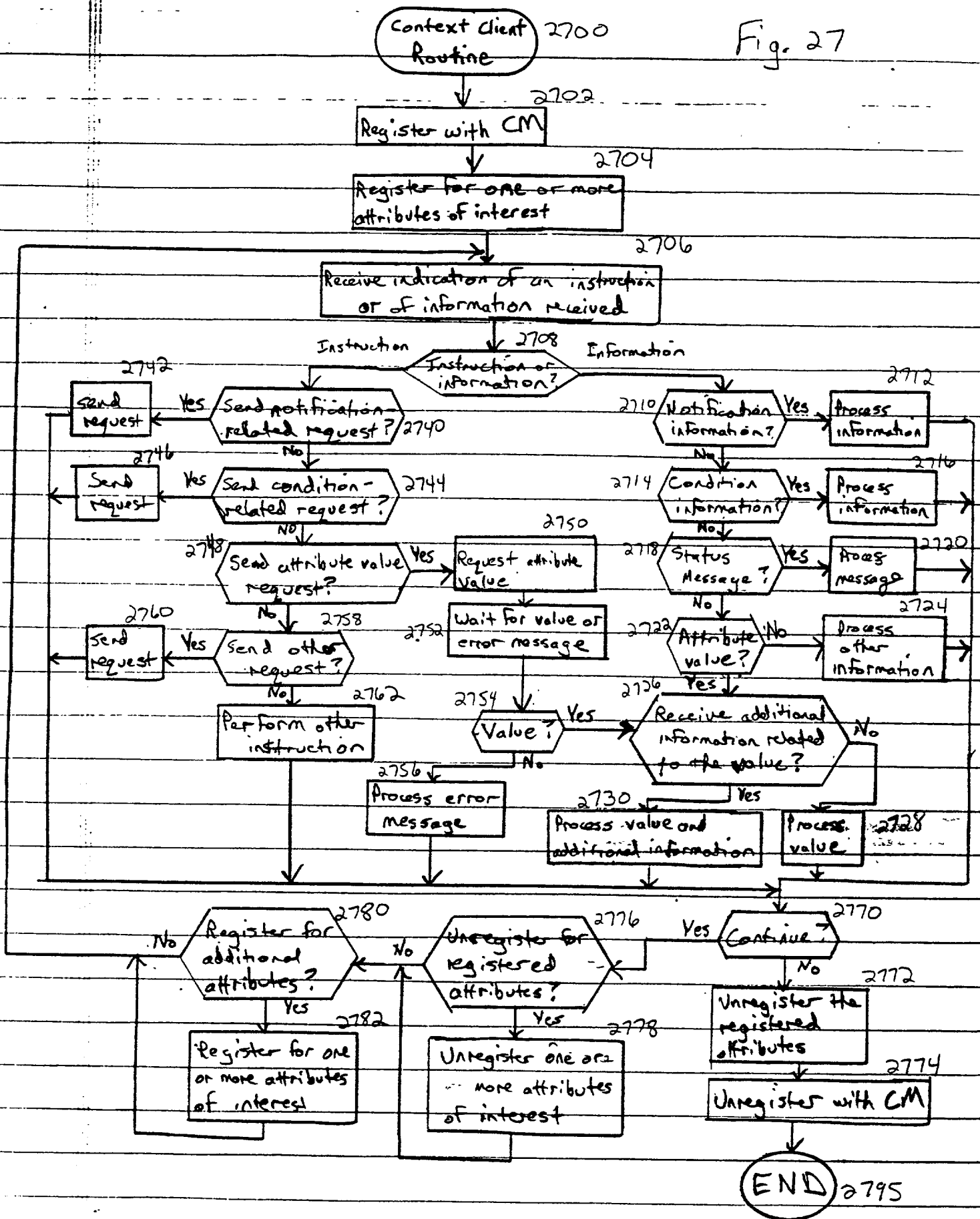


Fig. 27



# Context Server Routine

Fig. 28

